Coastline (1:25,000) Datalayer
April 1992

OVERVIEW

MassGIS has modified the USGS 1:24,000 Hydrography Digital Line Graph (DLG) quadrangle files to produce the Massachusetts coastline. The coast is maintained as 84 separate quadrangles of coast, each identified by **CS<QUAD-ID>**. Please refer to the list of *USGS 1:25,000 quadrangles* for quadrangle names and numbers.

PRODUCTION

MassGIS reformatted the DLG files into Arc/INFO coverages and projected them into the Mass. State Plane Coordinate system, NAD27. The coastline was then extracted from the files and edited. Polygon topology was also created for each quadrangle. The coverages have since been projected into the Massachusetts State Plane Coordinate System, NAD83 meters.

ATTRIBUTES

Item **TYPE** in CS<QUAD-ID>.AAT is coded:

TYPE	DEFINITION
0	Quadrangle boundary
1	Coastline
2	State boundary
9	Non-geographic feature

NOTE: Due to the complexity of the coverages, some polygons were split. The lines used to split polygons are coded **9** and represent no geographic feature.

Item **TYPE** in CS<QUAD-ID>.PAT is also coded:

TYPE	DEFINITION
1	Land
2	Water
3	Land; Represents areas outside of Massachusetts

EDITING

Checkplots were produced and compared to the paper 1:25,000 quads. Some digital quads were not available from the USGS at the time of production. Those quads were manually digitized. All quads were snapped to adjacent quads to ensure a continuous coastline.

To best serve the most users, the coastline was determined to end at the first dam from the mouth of a river. In the instances where no dam was evident on the DLGs, the coastal coverage was ended 4 quadrangles in from the shore. This technique was used for the Merrimack, Neponset and Taunton Rivers.

Coastline (1:5,000) Datalayer
March 1997

OVERVIEW

The 1:5000 scale coastline datalayer represents a shoreline generated from soft breaklines created from Digital Terrain Model (DTM) data points collected during the production of the 1:5,000 Black and White Digital Orthophoto images. The single layer, named **COAST5K**, is currently in development.

Breaklines coded "soft" for coastal areas were extracted from the original "hard" and "soft" breakline coverages tiled by orthoquad. The new "soft" breakline coverages were appended to produce one coverage. This coverage was manually edited using the orthophoto images as a background.

ATTRIBUTES

In addition to the standard items, the .AAT contains the item **OQ-ID**, which links the arcs to their original orthophoto index tile.

MAINTENANCE

MassGIS is maintaining this datalayer. Areas currently available include Cape Cod and the Boston metropolitan region from Nahant to Cohasset. As new DTM point data are available, soft breaklines generated for coastal regions will be incorporated into this layer.

Fish Traps (Weirs) Datalayer
August 1999

OVERVIEW

The Fish Traps (weirs) datalayer contains the point locations of fish trap permit holders' traps. These permit holders are licensed by the town in which the traps reside as well as by the MA Division of Marine Fisheries (DMF). Not all locations are active, and attributes in the PAT file reflect which trap was active each year from 1990 through 1998 based on catch reports submitted monthly by the permit holders. This datalayer is stored as a single statewide coverage named **FISH-TRP**.

METHODOLOGY

Points were generated using lat/long coordinates from the fish trap permit holder applications. Each application details the proposed trap location including lat/long. New points are added to the datalayer as new locations are approved by DMF. Currently there are 64 points in the datalayer.

ATTRIBUTES

The FISH-TRP.PAT (point attribute table) contains the following items:

TRAPNO	DMF Trap Number	3	3	I
ID	DMF Permit ID Number	6	6	C
ACT90	Active in 1990 (Y or N)	1	1	C
ACT91	Active in 1991 (Y or N)	1	1	C
ACT92	Active in 1992 (Y or N)	1	1	C
ACT93	Active in 1993 (Y or N)	1	1	C
ACT94	Active in 1994 (Y or N)	1	1	C
ACT95	Active in 1995 (Y or N)	1	1	C
ACT96	Active in 1996 (Y or N)	1	1	C
ACT97	Active in 1997 (Y or N)	1	1	C
ACT98	Active in 1998 (Y or N)	1	1	C

MAINTENANCE

MassGIS is maintaining this datalayer.

Anadromous Fish Datalayer
March 1997

OVERVIEW

The Department of Fisheries, Wildlife and Environmental Law Enforcement (DFWELE) GIS Program working in conjunction with biologists from the MA Division of Marine Fisheries and the MA Division of Fisheries and Wildlife compiled and automated a point coverage of anadromous fish data. The data include all known coastal anadromous fish runs spawning habitat and runs for three major inland rivers - the Nashua, the Concord and the Shawsheen. For the purposes of this database, a run, as defined by DFWELE GIS, is specific to a species and a named stream.

Note, this data layer should not be considered definitive in determining the presence or absence of fish runs, spawning habitat, barriers or fishways. It is the DFWELE GIS Program's best current representation of these features. Neither should this layer or its derived maps be used for making site specific regulatory decisions. Rather, its appropriate use is for education and regional planning. This is a transition coverage. When MASSGIS completes its "hydro centerline" project, producing a complete hydro network for the Commonwealth, inherently linear features such as fish runs and many of the spawning habitat features will be represented as such.

The Anadromous Fish datalayer is stored as a single coverage, **ANADFISH,** in the New England **(NE)** Library.

METHODOLOGY

During interviews with Division biologists the data points were compiled onto 1:25,000 basemaps using the best available hydrographic data. "Heads-up" digitizing was used to automate the data points. Paper forms were completed with information regarding locations of barriers, fishways, beginning and ending of runs and spawning habitat. The information from these forms was used to populate the associated look up tables (.riv,.run,.bar).

ATTRIBUTES

The .pat file contains references to (interview) form number, (form) page number and point id number. Form and point id number were combined to form a unique ID. The references to form and page number were designed to facilitate reference back to the appropriate forms during the data checking process.

There are three lookup tables: one to identify the river (.riv); one to identify the barriers and fishways (.bar); and one to identify the runs and spawning habitats (.run). There is a one-to-many relationship between the data points and the beginning/ending points of runs and spawning habitats. This will require the use of the NEXT command for INFO only queries or Cursors in ARCEDIT or ARCPLOT. Please see http://www.state.ma.us/dfwele/gisprog/gis_toc.htm for sample code.

NOTE: Shapefiles cannot handle info item names longer than 10 characters. If you are working with shape files see the MASSGIS provided file, INFO2SHP.DBF for the translation table.

Items in the **ANADFISH.PAT:**

FORM	# of form on which original data written down
PAGE	page # of form
PTID	# on form and on markup map which identifies a feature
COMMENTS	comment on feature
ANADID	concatenation of FORM and PTID to produce a unique coverage ID which is used to relate points in the coverage to records in the .luts

Note: underlined items have code definitions included below.

Items in the **ANADFISH.RIV:**

FORM	# of form on which original data written down
RIVPAGE	page # on form on which data for particular river begins
RIVPTID	# on form and on markup map which identifies the beginning of a river
CLASS	# defines where river flows into {(1) bay or ocean; (2) into 1; (3) into 2}
NAME	name of river
ALIAS	other name of river
ISCOMMENT	yes or no, simplifies reselect
COMMENTS	
ANADRIVID	concatenation of FORM and RIVPTID to produce a unique id which is used to relate to the .pat or .luts

Table relate note:
To identify a river with any point, relate ANADID from the .PAT to ANADRIVID in the ANADFISH.RIV

Items in the **ANADFISH.RUN**:

FORM	# of form on which original data written down
RIVPAGE	page # on form on which data for particular river associated with a run begins
RIVPTID	# on form and on markup map which identifies a feature
RUNPAGE	page # on form on which data for particular EVENTTYPE begins
BEGPTID	# on form and PTID on markup map which marks beginning of EVENTTYPE
ENDPTID	# on form and PTID on markup map which marks ending of EVENTTYPE
SPECIES	species of fish (separate records maintained for each species, even if run is the same)
EVENTTYPE	Run or Spawning
STATUS1	existing or historical
STATUS2	common or rare
STATUS3	confirmed or unconfirmed
ISCOMMENT	yes or no, comments are rare, useful for finding them.
COMMENTS	
ANADRIVID	concatenation of FORM and RIVPTID to produce a unique coverage id which is used to relate to the .pat or luts
ANADBGID	concatenation of FORM and BEGPTID to produce a unique coverage id which is used torelate to the .pat to identify the beginning of an EVENTTYPE
ANADEDID	concatentation of FORM and ENDPTID to produce a unique coverage id which is used to relate to the .pat to identify the end of an EVENTTYPE

Table relate note:
To identify the beginning of an EVENTTYPE, relate ANADID from the .PAT to ANADBGID in the ANADFISH.RUN
To identify the end of an EVENTTYPE, relate ANADID from the .PAT to ANADEDID in the ANADFISH.RUN

Items in the **ANADFISH.BAR**

FORM	# of form on which original data written down
RIVPAGE	page # on form on which data for particular river containing barrier begins
RIVPTID	# on form and on markup map which identifies a feature
BARPAGE	page # on form on which data for a particular barrier is found
BARPTID	# on form and on markup map which identifies a barrier
DAM	yes or no, simplifies reselect
FISHWAY	yes or no, simplifies reselect
TYPEFISHWAY	what kind of fishway
EFFECTFISHWAY	{(1) all species pass; (2) some species pass; (3) no species pass}
NATURALBAR	yes or no, simplifies reselect
TYPENATBAR	what kind of natural barrier
OTHERBAR	yes or no, simplifies reselect
TYPEOTHERBAR	what kind of man made barrier
ISCOMMENT	yes or no, simplifies reselect
COMMENTS	
ISDIAGRAM	yes or no, simplifies reselect
ANADRIVID	concatenation of FORM and RIVPTID to produce a unique coverage id which is used to relate to the .pat or luts to identify a river
ANADBARID	concatenation of FORM and BARPTID to produce a unique coverage id which is used to relate to the .pat to identify the barrier location

Table relate note:
To identify a barrier or fishway, relate ANADID from the .PAT to ANADBARID in ANADFISH.BAR

Coding for categorical items in the lookup tables is as follows:

LOOKUP TABLE	ITEM	DEFINITIONS
ANADFISH.RIV	CLASS	1 - Empties into ocean or bay 2 - Empties into 1 3 - Empties into 2
ANADFISH.RUN	EVENTTYPE	LOC - Local concentration RUN - Run SPN - Spawning habitat
	SPECIES	ALW - Alewife ASH - American Shad ASM - Atlantic Salmon ATS - Atlantic Sturgeon BBH - Blueback Herring LMP - Lamprey RBS - Rainbow Smelt SNS - Shortnosed Sturgeon WPR - White Perch
	STATUS1	E - existing H - historic
	STATUS2	C - common R - rare
	STATUS3	C - confirmed U - unconfirmed
ANADFISH.BAR	EFFECTFISHWAY	1 - All species pass 2 - Some species pass 3 - No species pass
	TYPEFISHWAY	DN - Denil EL - Elevator FL - Fishladder LO - Locks used by fish ST - Steps TM - Temporary UN - Unknown VS - Vertical slot WB - Wooden boards WD - Weir pool and denil WF - Weir pool and Fishladder WP - Weir pool WS - Weir pool and steps
	TYPENATBAR	NF - Natural falls BL - Boulders DRB - Dry river bed SB - Sand bar BB - Barrier beach BD - Bog dam RAPID - Rapid VG- Thick growth vegetation GE - Ground elevation LF - Low flow
	TYPEOTHERBAR	SW - Sluiceway TG - Tidegate CUL - Culvert DI - Ditch PP - Power plant SCREEN

Designated Shellfish Growing Areas Datalayer
October 2000

OVERVIEW

The Designated Shellfish Growing Area (DSGA) datalayer was compiled by the Department of Fisheries, Wildlife and Environmental Law Enforcement's (DFWELE) Division of Marine Fisheries (DMF). Three hundred and three growing areas in Massachusetts have been designated by DMF's Shellfish Project, and are stored as a single polygon coverage named **DSGA** stored in the NE library.

A designated shellfish growing area is an area of potential shellfish habitat, and all three hundred and three DSGA's make up the territorial waters (tidal zone out to the territorial line) of the Commonwealth. Growing areas are managed with respect to shellfish harvest for direct human consumption, and comprise at least one or more **classification areas**. The classification areas are the management units, and range from being **approved** to **prohibited** (six different classification types in all) with respect to shellfish harvest. For example, one growing area may be composed of four classification areas, all of which are managed separately (have a classification type the same or different from the rest in the growing area). This coverage reflects classification areas as of July 1, 2000.

METHODOLOGY

The growing areas and their classification areas were defined by DMF shellfish project biologists. Compilation base maps covering the entire coast and islands were plotted at 1:12,000 using hydrography from 1:24,000 USGS DLG; 1:100,000 USGS DLG; and 1:25,000 USGS Topographic maps, all modified and enhanced by MassGIS. In addition, town boundaries, the territorial waters line and roads were plotted on these base maps. Shellfish project biologists compiled area boundaries onto the base maps, and these boundaries were then digitized or constructed using existing hydrography, town or territorial sea lines by DMF GIS personnel. Check plots were created and boundaries QA/QC'd by the biologists.

PRODUCTION

Separate 11 x 17 color plots are produced for each growing area based on the mapextent of the area and its sampling stations. Classification area lines which need to be added, moved or deleted are compiled on these plots and automated by DMF GIS staff. A new 11 x 17 is produced and kept on file until another area change occurs.

ATTRIBUTES

The **.PAT** file (polygon attribute table) has the following attributes associated with each polygon:

GRW_AREAID	ID associated to each growing area
CL_DESC_ID	Unique ID for each class area
GRW_AREACD	Code name for growing area. For example: N2 is the GRW_AREACD for the Merrimack River
GRW_AREA_NM	Meaningful name for growing area (For example: Merrimack River for N2)
CL_AREANM	Classification area name (Code format similar to GRW_AREACD. Starts with GRW_AREACD and is appended by a '.' and a number making it unique within the growing area. For example: N2 has a classification area in it called N2.0
CL_TYPE	Classification type or how classification area is classified with respect to shellfish harvest for direct human consumption. There are six classification types which are listed below.
CL_STATUS	Classification status or whether the area is OPEN or CLOSED to shellfish harvest for direct human consumption.
CL_BEGINDT	Date classification area was classified.

CLASSIFICATION TYPES:

Note symbol numbers have been included because the Division of Marine Fisheries Shellfish Project has asked that the same shadeset symbols are used for each classification type so that maps are plotted consistently.

APPROVED	Open for harvest of shellfish for direct human consumption subject to local rules and state regulations. (SHADESET SWPI - SYMBOL 3)
CONDITIONALLY APPROVED	During the time area is approved, it is open for harvest of shellfish for direct human consumption subject to local rules and state regulations. (SHADESET SWPI -SYMBOL 502)
CONDITIONALLY RESTRICTED	During the time area is restricted, it is only open for the harvest of shellfish with depuration subject to local rules and state regulations. (SHADESET SWPI - SYMBOL 265)

RESTRICTED	Open for harvest of shellfish with depuration subject to local rules and state regulations or for the relay of shellfish. (SHADESET SWPI - SYMBOL 381)
MANAGEMENT CLOSURE	Closed for harvest of shellfish. Not enough testing has been done in the area to determine whether it is fit for shellfish harvest or not. (SHADESET SWPI - SYMBOL 34)
PROHIBITED	Closed for harvest of shellfish. (SHADESET SWPI - SYMBOL 2)

The two ID's (GRW_AREAID and CL_DESC_ID) link to ID's in several different tables in an Oracle relational database. Information in the database is extensive and covers the area names and classification types, legal boundary descriptions, date of classification, rainfall data and acreage figures. Historical information about each area is maintained, beginning January 1, 1995. In addition, area information is also associated with water quality and marine biotoxin sampling data collected by shellfish project biologists, used to manage the areas. A separate GIS datalayer called SHLFSHST has been created to maintain the sampling points; see the Shellfish Sampling Station Datalayer description for details.

This datalayer has an **.AAT** file with the following attributes associated with each arc (same as 1:25K hydrography, since coastline was constructed using this datalayer):

MINOR_TOT
SOURCE
COAST
MINOR_NUM

See the 1:25,000 Hydrography Datalayer description for codes.

The attribute **SOURCE** has also been used to code added arcs (non-hydrography arcs) as part of lines between adjacent growing areas and classification areas as well as overall polygon closure lines. The codes are as follows:

SOURCE = C	Indicates an arc which separates two classification areas within the same growing area.
SOURCE = G	Indicates an arc which separates two growing areas.

These codes can be useful when plotting, as the arcs can be identified and plotted differently.

MAINTENANCE

The Division of Marine Fisheries and MassGIS are maintaining this datalayer.

MA DMF Lobster Harvest Zones Datalayer
August 1999

OVERVIEW

This datalayer consists of 25 distinct "statistical reporting areas" covering a large portion of the Gulf of Maine and south, including the territorial waters of the Commonwealth of Massachusetts. Fourteen of the areas compose the territorial waters, while the other 11 match those of the National Marine Fisheries Service areas for offshore bodies of water bordering the Commonwealth's territorial areas, including George's Bank. These areas are used mainly on maps for fishermen to report their landings (including lobster harvest), as well as for producing plots in various Massachusetts Division of Marine Fisheries (DMF) annual publications showing landings per area. The data distributed by MassGIS includes statistics for lobster harvest zones only; 1997 is the only year data currently available. The datalayer is stored as a single coverage in the NE library, named **LOB-HARV**.

METHODOLOGY

A polygon coverage was created from several different sources. State boundaries from Maine to Connecticut at 1:25,000 were combined to form a 'New England' land coverage for basic reference and coastline. Existing territorial lines were combined as well as bathymetric and latitude-longitude lines to complete the polygons.

ATTRIBUTES

The **LOB-HARV.PAT** (polygon attribute table) contains the following items:

AREA_ID	3	3	I		Statistical Area ID or Number
POUNDS97	12	12	N	2	Lobsters harvested in pounds for specific year

MAINTENANCE

MassGIS is maintaining this layer. Updates will be made as information is made available from USGS.

Tidal Restrictions Datalayer
October 1999

OVERVIEW

The Massachusetts Coastal Zone Management (MCZM), within the Executive Office of Environmental Affairs (EOEA), has compiled a tidal crossing inventory and assessment GIS coverage for the Parker River/Essex Bay ACEC project. The purpose of the project was to develop a regional picture of current and potential restoration sites based on current tidal restrictions. The focus area for this project includes the areas between Salisbury and Salem. The data is stored as a single statewide layer, named **TIDALRST**.

METHODOLOGY

CZM first reviewed existing data from the Tidal Crossing Inventory and Assessment, Full Report: Upper North Shore, Massachusetts, which was prepared for the Eight Towns and the Bay Committee, December 19, 1996 by Parker River Clean Water Association. The digital data was compiled in ArcView by on-screen digitizing the points from the original Tidal Crossing Inventory using 1:5,000 half-meter resolution black and white orthophotos as a base coverage and joining the points with a database file of attributes

ATTRIBUTES

This data layer has a .PAT with the following items:

ID	Numerical ID of tidal crossing location
SITE_NAME	Unique town site name
ID_NUM	Unique state site name
TOWN	Town the site is located in
LOC_DESC	Physical description of area
WATER_BODY	Water body that is restricted
STREET	Street causing restriction
RESTRICTIO	Restriction phase
UPSTM_TIDA	Upstream tide height
DNSTM_TIDA	Downstream tide height
CI_COND_BR	Condition of the bridge
CI_COND_CU	Condition of the culvert
CI_COND_RD	Condition of the road
CULVERT_TY	Type of culvert
CULVRT_DIM	Dimensions of opening
UPSTR_CH_W	Upstream channel width at crossing
DNSTR_CH_W	Downstream channel width at crossing
LENGTH_CRO	Length of crossing
CROSS_WIDT	Crossing width in middle
RD_MATERIA	Road surface material
RD_WIDTH	Road surface width in middle

MAINTENANCE

All project work has been archived at MCZM offices. For further information, please contact Data Manager, Diane Carle, (617) 626-1222, MCZM, Boston, MA

Bathymetry for the Gulf of Maine Datalayer
December 1999

OVERVIEW

This datalayer represents seafloor topography for the Gulf of Maine, extending from the Bay of Fundy south of New Brunswick to the Continental Shelf southeast of Nantucket. The linework in this layer came from an ArcInfo bathymetric contour coverage available through the U.S. Geological Survey's Coastal and Marine Geologic and Environmental Research program, part of its Woods Hole Field Center. MassGIS assembled the data into a polygon coverage stored in the NE library, named **BATHYMGM**.

MANUSCRIPT

The USGS collected data from available sources on the Web and from CD-ROM products. The data included digital sounding data, digitized contour line data and previously gridded products from a variety of sources. Specifically, seven datasets were incorporated to produce a final 15 second grid product:

- NOAA Hydrographic Survey Data and NGDC Marine Trackline Geophysics Data - hydrographic surveys completed between 1930 and 1965, and from survey data acquired digitally on NOS survey vessels since 1965. The data is extremely dense in many regions (greater than 0.5 km resolution), but there are large gaps in the coverage due to surveys currently in non-digital form.
- Naval Oceanographic Office DBDB-V gridded bathymetry - crucial coverage in the interior of the Gulf and in Canadian waters, constructed from a variety of public and classified source data.
- Supplemental Datasets from Bedford Institute of Oceanography and Brookhaven National Laboratory - filled gaps in the interior of the Gulf between the NOSDB data and the DBDB-V data as well as providing coverage of the Scotian Shelf and gaps on the eastern flank of Georges Bank.
- NOAA Medium resolution digital Shoreline and DMA World Vector Shoreline - 1:80,000 US shoreline created by the Strategic Environmental Assessments Division of NOAA's Office of Ocean Resources, Conservation and Assessment. The DMA's World Vector Shoreline (WVS) is suitable for scales close to 1:250,000.
- Defense Mapping Agency ETOPO5 Digital relief of the Surface of the Earth - generated from a digital data base of land and seafloor elevations on a 5-minute latitude/longitude grid. The original source of the data in the ocean areas in ETOPO5 is from the U.S. Naval Oceanographic Office.
- GEBCO General Bathymetric Chart of the Oceans - Digitized bathymetry for the World Ocean at a scale varying from 1:10 million to 1:500,000 depending on data density. GEBCO bathymetry is available from the British Oceanographic Center on behalf of the International Hydrographic Organization.
- USGS North American 30 arc-second Digial Elevation Model (DEM), used for land values. MassGIS removed this land data; the BATHYMGM layer contains topography for offshore areas only.

Bathymetry contour lines were then generated at the following intervals, in meters below sea level, from the 15 second grid: -4000, -3000, -2000, -1000, -500, -400, -300, -280, -260, -240, -220, -200, -180, -160,-140, -120, -100, -90, -80, -70, -60, -50, -40, -30, -20, -15, -10, -5

PRODUCTION

MassGIS processed the bathymetry linework coverage to remove dangles and intersection errors and to create polygon topology. With Arc Macro Language (AML), each polygon was coded for a range of depth below sea level in meters, based on the values of the lines' CONTOUR item. Additionally, the mainland areas were "sealed off" to create an inland polygon coded with the range "Above -5." Because there was no zero contour or coastline in the original USGS dataset, this inland polygon

represents the shallowest of sea floor topography. When displaying this layer it is important to draw land features atop the bathymetry; the coastline included in land feature will serve as the zero contour and the area just offshore will appear as the -5 to 0 range.

ATTRIBUTES

The **.PAT** (polygon attribute table) has the following attributes associated with each polygon:

HIGH	4	5	B	The highest (closest to surface) depth, in meters
LOW	4	5	B	The lowest (farthest from surface) depth, in meters
DEPTHRANGE	14	14	C	The range of values, from the HIGH value to LOW
DEPTHCODE	2	2	I	A numeric code based on the DEPTHRANGE value. See following table:

DEPTHRANGE	DEPTHCODE
Above -5	1
-5 TO -10	2
-10 TO -15	3
-15 TO -20	4
-20 TO -30	5
-30 TO -40	6
-40 TO -50	7
-50 TO -60	8
-60 TO -70	9
-70 TO -80	10
-80 TO -90	11
-90 TO -100	12
-100 TO -120	13
-120 TO -140	14
-140 TO -160	15
-160 TO -180	16
-180 TO -200	17
-200 TO -220	18
-220 TO -240	19
-240 TO -260	20
-260 TO -280	21
-280 TO -300	22
-300 TO -400	23
-400 TO -500	24
-500 TO -1000	25
-1000 TO -2000	26
-2000 TO -3000	27
-3000 TO -4000	28
Below -4000	29

The **.AAT** (arc attribute table) has the following attributes:

CONTOUR	4	5	B	Depth below sea level, in meters

This layer also contains three levels of annotation, subclass NAME, for some offshore features.

MAINTENANCE

MassGIS is maintaining this datalayer. More information on this and related datasets may be found online at http://oracle.er.usgs.gov/GoMaine/bathy/. A more generalized and less extensive offshore bathymetry coverage developed by Mass. Coastal Zone Management, BTHOS250, is also available.

Offshore Bathymetry (1:250,000) Datalayer
December 1999

OVERVIEW

This datalayer represents bathymetry data - seafloor topography - for ocean waters off the coast of Massachusetts. The layer was created by EOEA Coastal Zone Management analysts for graphic display purposes only and is general in nature; it should not be used for navigation. Polygons were delineated from a 1:250,000 USGS regional map. Ocean depth measurements are in meters. The dataset is stored as a single coverage in the NE library named BTHOS250.

ATTRIBUTES

The datalayer's polygon attribute table (.PAT) has the following items:

DEPTH_NOS	8	12	F	0	Code number for depth range (see table below)
DEPTHRANGE	14	14	C	-	Text field indicating depth below sea level, in meters

DEPTH_NOS	**DEPTHRANGE**
1	Above -15m
2	-15m to -25m
3	-25m to -40m
4	-40m to -90m
5	-90m to -200m
6	Below -200m

This layer also contains two levels of annotation, subclass NAME, for some offshore features.

MAINTENANCE

The layer is being maintained by MassGIS. For more detailed offshore bathymetry see the description for the Bathymetry for the Gulf of Maine datalayer.

The Massachusetts Coastal Zone Datalayer
April 1997

OVERVIEW

The Coastal Zone data layer was compiled by the Massachusetts Bays Program. The data are stored as a single statewide coverage named **CSTZONE**.

MANUSCRIPT

The Massachusetts Coastal Zone Management Plan Volume II of 2, Chapter 5: Massachusetts Coastal Regions and An Atlas of Resources. The maps in this document were derived from reduced reproductions of USGS Topographic Maps.

METHODOLOGY

An arc and polygon coverage were built by "screen digitizing" the boundary. Reference material included road and stream data from MassGIS as well as other un-documented sources. The shoreline used in this coverage is from the MassGIS 1:100,000 source.

ATTRIBUTES

The data layer has an .AAT and .PAT with the following items:

The .AAT:

Item Name	Width	Output	Type	Comments
BOUNDARY	4	5	C	Numeric code matching feature type
FEATURE	16	16	C	Definition of boundary type including (inland, shoreline, federal, state)

The .PAT:

Item Name	Width	Output	Type	Comments
CZ-TYPE	2	2	I	Numeric code matching feature type
FEATURE	16	16	C	Identifies lands and waters within the Coastal Zone

MAINTENANCE

The Massachusetts Coastal Zone Management (MCZM) Program maintains the data.

Coastal Barrier Resource Units Datalayer
April 1997

OVERVIEW

The U.S. Fish and Wildlife Service designated coastal barrier resource units data layer was compiled by the Resource Mapping Project staff at the University of Massachusetts, Amherst for the Massachusetts Coastal Zone Management (MCZM) Program. The data are stored as a single statewide coverage named CBRS. The designations show barrier beaches and the associated aquatic habitat.

MANUSCRIPT

Interpreted 1:25,000 paper USGS Topographic Maps from the U.S. Fish and Wildlife Service.

METHODOLOGY

A polygon coverage was built by digitizing interpreted feature boundaries not including the shoreline. The shoreline used in this coverage is from the MassGIS 1:25,000 source. The automation of this data was conducted in May, 1993. Minor changes to the delineations have recently been made and published in the Federal Register. Updated delineations will be available when the U.S. Fish and Wildlife Service provides revised documents.

ATTRIBUTES

The data layer has an .AAT and .PAT with the following items:

The .AAT (Arc Attribute Table):

Item Name	Width	Output	Type	Comments
BOUNDARY	4	5	B	Numeric code matching feature type.
FEATURE	16	16	C	Identifies inland shoreline or marine boundary.

The .PAT (Polygon Attribute Table):

Item Name	**Width**	**Output**	**Type**	**Comments**
POLYID	4	5	B	1 = Land 2 = Water 3 = Non MA Land 11 to 96 Numeric code to identify unique features. <11 to 96>999 = Aquatic component to designation.
CBRSNAME	8	8	C	U.S.F.W.S. alpha-numeric code for each unit, or a “Marine” label for marinecomponents.

MAINTENANCE

The Massachusetts Coastal Zone Management Program maintains the data.

State Designated Barrier Beaches Datalayer
April 1997

OVERVIEW

The state barrier beach data layer was compiled by the Resource Mapping Project staff at the University of Massachusetts, Amherst for the Massachusetts Coastal Zone Management (MCZM) Program. The data are stored as a single statewide coverage named **BARRIERB**.

MANUSCRIPT

Interpreted paper USGS Topographic Maps.

METHODOLOGY

A polygon coverage was built by digitizing interpreted feature boundaries not including the shoreline. The shoreline used in this coverage is from the MassGIS 1:25,000 source.

ATTRIBUTES

The data layer has a .AAT (Arc Attribute Table) with the following items:

Item Name	Width	Output	Type	Comments
BBPOLYID	4	5	B	Arbitary numeric code to identify unique features.
BBNAME	8	8	C	State designated alpha-numeric code for each barrier beach unit.

MAINTENANCE

MCZM maintains the data.

Stellwagen Bank National Marine Sanctuary Datalayer
April 1997

OVERVIEW

The Stellwagen Bank National Marine Sanctuary data layer was compiled by the Massachusetts Bays Program. The data are stored as a single coverage named **STELLBNK** in the STATE library.

MANUSCRIPT

A table of precise position locations taken from the Federal Register.

METHODOLOGY

A polygon coverage was generated from a series of point locations entered from the keyboard.

ATTRIBUTES

The data layer has a .PAT with the following items:

Item Name	Width	Output	Type	Comments
Boundary	4	5	B	Numeric code matching feature type
Feature	16	16	C	Federal/State boundary definition

MAINTENANCE

The Massachusetts Coastal Zone Management (MCZM) Program maintains the data.

Federal & State Marine Sanctuaries Datalayer
October 1996

OVERVIEW

This datalayer represents the boundaries of several federal and state marine sanctuaries located off the coast of Massachusetts. It was developed by the Enquad Harbor Studies Department of the Massachusetts Water Resources Authority. The layer and coverage are both named **SANCT**, stored in the NE library.

ATTRIBUTES

The **SANCT.PAT** (polygon attribute table) contains the following items:

TYPE Type of feature (Mainland = 2, Island = 3, Sanctuary = 4)
NAME Name of sanctuary

MAINTENANCE

MCZM maintains the data.

Salt Marsh Restoration Sites Datalayer
October 2000

OVERVIEW

Massachusetts Coastal Zone Management (MCZM), within the Executive Office of Environmental Affairs (EOEA), has compiled a salt marsh restoration GIS coverage for the Parker River / Essex Bay Area of Critical Environmental Concern (ACEC) project. The purpose of the project was to develop a regional picture of past, current, and potential restoration sites along with supporting information to help future restoration planning. The focus area for this project includes the salt marsh between Salisbury and Gloucester. The layer is stored as single coverage in the STATE library, named **SMRESTOR**.

METHODOLOGY

This datalayer was compiled by meeting with staff from the Massachusetts Audubon Society and Northeast Massachusetts Mosquito Control and Wetlands Management. Restoration sites and Open Marsh Water Management (OMWM) were identified by having staff from these two organizations identify point locations of restoration sites using USGS base maps. The database was created in ArcView and then joined with the associated points.

ATTRIBUTES

This data layer has a .PAT (point attribute table) with the following items:

ID	4-letter watershed abbreviation and consecutive number
PROJ_NAME	(Project name) Common or organizational name given to restoration sites
TOWN	Municipality of restoration site
WATERBODY	Closest USGS feature that restoration site drains into
SITE_OWNER	Choice of: public; private; nonprofit
STATUS	Choice of: complete; potential; active; inactive; monitored; permitted only
MONITORING	Name of organization in charge of restoration pre- or post-monitoring
FUND_STATUS	(Funding status) Choice of: funded; unfunded; partially funded for restoration work
COST_EST	(Cost estimate) Choice of: unknown; <10K; 10-100K; >100K
PARTNERS	Other project participants besides the main contact
CONTACT	Primary organizer of restoration project
ACRE_RANGE	Range of acreage. Choice of: ranges being <1; 1-5; 5-10; 10-25; 25-50; 50-100; >100
PROJ_DESC	(Project description) Description of restoration project
PROJ_TYPE	(Project type) Choice of: restoration or mosquito control OMWM

MAINTENANCE

All project work has been archived at MCZM offices. For further information, please contact Data Manager, Diane Carle, (617) 626-1222, MCZM, Boston, MA, 02114-2119.

Nautical Datalayer Datalayer
August 1997

OVERVIEW

The nautical datalayer was developed by Photo Science Inc. of Gaithersburg, Maryland for the Massachusetts Coastal Zone Management (MCZM) Program. The datalayer contains 25 feature layers from NOAA nautical charts. Only features represented by line work were extracted. Aids to navigation and bathymetry were not compiled. The data are stored as a single coverage named **NAUTICAL** in the Northeast (NE) library.

MANUSCRIPT

Thirty-three individual digital NOAA nautical charts ranging in scale from 1:5,000 to 1:80,000.

METHODOLOGY

TIFF imagery was imported to ARC/INFO with the IMAGEGRID command. Magenta, Gray, and Black features were extracted with ARCSCAN. Custom editing was conducted to capture or remove features after the ARCSCAN session. Vector editing was conducted using imagery in the background. Topology was generated for each chart with the BUILD LINE option. All charts were APPENDED to a single statewide coverage. No "rubber sheeting" of data along chart borders was conducted. Features were split on borders of different scale charts, and lower resolution data were removed. Annotation is included.

ATTRIBUTES

The data layer has an .AAT (Arc Attribute Table) with the following items:

Item Name	Width	Output	Type
CODE	4	5	B
DESCRIPTION	35	35	C

FEATURES INCLUDED:

0 – Unidentified
1 - Channel Boundary
2 - Traffic Lane
3 - COLREGS Demarcation Zone
4 – Cable
5 – Pipeline
6 - Sewer Line
7 - Three Nautical Mile
8 - Territorial Sea
9 - Anchorage Area
10 - Pilot Boarding Area
11 - Pipeline Area
12 - Precautionary Area
13 - Prohibited Area
14 - Cable Area
15 - Channel Separation Zone
16 - Disposal
17 - Unexploded Ordinance Area
18 - Fish Trap Area
19 - Safety Zone
20 - Spoil Area
21 - Area to be Avoided
22 - Anchorage berths
23 - Tunnel
24 - National Wildlife Refuge Area

MAINTENANCE

Currently MCZM has no plans to update this datalayer.

Datalayers from the 1990 U.S. Census of Population and Housing
December 1995

OVERVIEW

The US Bureau of the Census developed and now distributes the Topologically Integrated Geographic Encoding and Referencing System (TIGER) extract data sets as part of the 1990 Decennial Census. These files are available nationwide and serve as a geographic framework for Census summary statistical and demographic data. EOEA has obtained these files and has reprocessed them into Arc/INFO format and the Massachusetts State Plane Coordinate System to match the existing MassGIS database.

The Census Bureau developed the "TIGER/Line" geographical database to support its census enumeration and publication programs starting with the 1990 Decennial Census. Linework contained in these files includes the boundary features that the Bureau uses in preparing its data tabulations, including roads, streams, and political boundaries. Much of this linework is comparable to the 1:100,000 scale Digital Line Graphs (DLGs) produced by the U.S. Geological Survey, and in fact DLGs of roads and streams were the source of much of the linework compiled outside of metropolitan areas. Unlike DLGs, the TIGER/Line data includes feature names and, in metropolitan areas, ranges of street addresses. Street name and address attributes facilitate the process of "address-matching" or "geocoding" -- linking addresses with geographic coordinates in a GIS.

The TIGER network of lines forms the boundaries of "census block" polygons, the smallest units used by the Census Bureau in tabulating its data. Census blocks are typically the size of city blocks: in fact, they often *are* city blocks, but they can be bounded not only by streets but also by other linear geographic features in the TIGER files including streams and political boundaries. Each of these polygons is assigned a census block number in the TIGER file that is used to reference tabular data published by the Census Bureau.

The tabular data files ("matrices") published by the Census Bureau, *not* the TIGER files themselves, contain the demographic summaries produced as a result of the 1990 Census. However, in the reprocessing of TIGER files for use at MassGIS, a few selected data attributes were extracted from these matrices and incorporated into the MassGIS Census datalayers.

WHAT MASSGIS PROVIDES

As federal digital data products, Census data including TIGER files and matrices are available for purchase directly from the Census Bureau in Washington, D.C. Data are also available to the public at 41 Federal and Census Depository Libraries in Massachusetts, including many university libraries and the Boston Public Library.

MassGIS has extracted and reprocessed data from the original TIGER files for use in its Arc/INFO Geographic Information System. The reprocessed Census datalayer has been converted into the Massachusetts State Plane Coordinate system; to minimize processing requirements, the data have been extracted into two datalayers, each with individual town coverages. The *Census Block/TIGER* datalayer includes the complete set of TIGER linework. The Census block coverages have been prepared for Arc/INFO address matching and have a few demographic data items appended from a variety of Census Bureau publications. The *Census Block Group* datalayer contains only the block group boundaries, so has less spatial detail than the Census Block layer, but has much more demographic data from the Census Bureau's STF-1a and STF-3 publications.

The MassGIS Census data may be convenient for use in an Arc/INFO GIS environment, in projects requiring data in the Massachusetts State Plane Coordinate system, or in applications which make

use of the specific set of Census Bureau demographic data appended to the MassGIS coverages. In other cases it may be equally effective to obtain the original TIGER files directly from the Census Bureau.

CONSIDERATIONS WHEN USING TIGER DATA

The development of a nationwide, standard 1:100,000 scale geographic data set for the 1990 Census has been hailed as the "backbone" of a federal geographic data infrastructure. The TIGER files are a unique resource, containing a wealth of geographic data attributes unavailable in earlier data sets such as the 1:100,000 scale Digital Line Graphs published by the U.S. Geological Survey. The link between the TIGER files and Census Bureau data -- and potentially with data to be published by other federal agencies -- makes TIGER data an attractive option for GIS users. Furthermore, the relatively low cost of Census Bureau data and its availability at depository libraries makes TIGER data easily accessible.

As with all sources of GIS data, TIGER data is not suitable for use at scales larger than that at which it was compiled. In the case of TIGER data this scale is 1:100,000--a regional scale which is not recommended for use on the larger scale of a Massachusetts town. MassGIS has found the accuracy of TIGER linework to be inconsistent, especially in metropolitan areas where a variety of source maps were used to compile the TIGER files. Another concern for potential users of this data is the size of the TIGER files. As issued by the Census Bureau, county TIGER files are very large and may strain the processing capacities of microcomputers; the smaller town coverages produced by MassGIS may reduce this problem.

TIGER linework frequently does not match the MassGIS "base map" coverages, so care should be exercised when using other MassGIS datalayers together with the Census datalayer for spatial analysis. For this reason, the individual town coverages may contain small polygons with Census codes relating to neighboring towns.

Due to the large volume of data, not every town in the Commonwealth has been checked systematically. The TIGER files contain many errors that were created by the Census Bureau during the production process -- for example, legitimate arcs that are smaller than 0.1 feet in length. While these arcs have little meaning in a cartographic database, they are part of the TIGER data structure; without them, the relationship between graphics and attributes is degraded or destroyed. In order to maintain this relationship, MassGIS does not intend to edit or make corrections to the TIGER linework.

For more information about TIGER products, contact the U.S. Census Bureau Boston Office at (617) 424-0510. Information about Census data at depository libraries is available from the Boston Public Library, Government Documents Desk at (617) 536-5400 x 226.

Census Block (TIGER) Datalayer
December 1995

SOURCE

This datalayer was produced from the post-census release of 1990 TIGER/Line files for the fourteen counties of Massachusetts. This datalayer includes the boundaries of all census blocks and can therefore be used in conjunction with Census Bureau data summarized at the census block level – the finest available resolution of census data. To facilitate processing, this datalayer has been broken down from the original county files into town coverages.

PRODUCTION

The Census Block coverages were created by extracting from county TIGER files all linework, line attributes, and polygon attributes. The coverages were enhanced by dropping redundant data items, appending several demographic data items from the STF-1, STF-3a, and PL94-171 census data matrices, and creating an Arc/INFO ADD file for address-matching. Each polygon in the original county TIGER file was assigned a MassGIS town-ID code, ensuring that all of the original polygons appear within the Town TIGER Geography datalayer.

In some cases, polygons within the TIGER line network were not assigned unique *census block* numbers by the Census Bureau. That is, more than one polygon was assigned a single census block number, and is thereby related to the same record in the matrices of demographic data published by the Census Bureau. In order to overcome the problem of redundantly assigning data values from the matrices to the TIGER Geography coverages' polygon attribute tables on the basis of these non-unique census block numbers, MassGIS apportioned numeric values among the polygons on the basis of their relative area. This is arguably incorrect, since it assumes demographic heterogeneity among all polygons assigned the same census block number. However, in all cases observed by MassGIS, such polygons were contiguous and relatively small, so the impact of this error is expected to be minimal.

MassGIS has created street name annotation for use with the TIGER line files. Annotation is stored in the subclass NAME (anno.name) and should be used with textset font if plotting from ArcPlot. Anno.name is based on routes in the TIGER lines, so every named street, as opposed to every single arc, has annotation.

ATTRIBUTES

The Town Census Block Group coverages distributed by MassGIS are accompanied by several INFO database files: the PAT (polygon attribute table), AAT (arc attribute table), and ADD (address-matching table). The format of these tables are described below:

Data items in a Census Block PAT file

item_name	Width	Decimal Places	Type	Is Item Coded?
BLK	4	0	Character	N
TABULATION BLOCK NUMBER				
TIGER ITEM				
BLKGROUP1	0		Integer	N
CENSUS BLOCK GROUP				
REDEFINED FROM CTBNA				
CD101	2	0	Integer	N
CONGRESSIONAL DISTRICTS (US HOUSE OF REPS) - 101ST CONGRESS				
VALID THROUGH 102ND CONGRESS				
CD103	2	0	Integer	N
CONGRESSIONAL DISTRICTS (US HOUSE OF REPS) - 103RD CONGRESS				
CURRENT CONGRESSIONAL DISTRICTS				
CENID	5	0	Integer	N
CENSUS FILE IDENTIFICATION CODE				
TIGER ITEM				
CENPOLID	15	0		N
CENSUS POLYGON ID				
CONCATENATED FROM TIGER ITEMS CENID & POLYID				
COUNTY	3	0	Integer	Y
FIPS COUNTY CODE				
TIGER ITEM				
CTB	6	0	Character	N
CENSUS TRACT/BNA CODE (CHARACTER)				
REDEFINED ITEM				
CTBNA	6	0	Integer	N
CENSUS TRACT/BNA CODE				
TIGER ITEM				
FMCD	5	0	Integer	N
FIPS 55 CODE (MCD/CCD)				
TIGER ITEM				
FPL	5	0	Integer	N
FIPS 55 CODE (PLACE)				
TIGER ITEM 'FPLCDE'				
HU100	16	5	Number	N
HOUSING UNITS				
FROM CENSUS FILE PL94171				
ID-720	13	0	Character	N
CONCATENATED ID FOR SUMMARY LEVEL 720				
RELATE TO CENSUS SUMMARY TAPE FILES & PL-94171 FILES				
ID-750	23	0	Character	N
CONCATENATED ID FOR SUMMARY LEVEL 750				
RELATE TO CENSUS SUMMARY TAPE FILES & PL-94171 FILES				
POLYID	10	0	Integer	N
POLYGON IDENTIFICATION CODE (TEMPORARY)				
TIGER ITEM				
POP100	16	5	Number	N
POPULATION				
FROM CENSUS FILE PL94171				
SAC10	1	0	Character	N
ACTUAL/PSEUDO VOTING DISTRICT CODE				
USED TO VERIFY VTD VALUE				
STATE	2	0	Integer	Y
FIPS STATE CODE				
TIGER ITEM				
TILE-NAME	8	0	Character	N
COVERAGE LOCATION (TILE) IDENTIFIER				
MassGIS TOWN ID				
TRACT-BLOCK	10	0	Character	N
CONCATENATED TRACT AND BLOCK CODES				
VTD	4	0	Character	N
VOTING DISTRICT CODE				
USED IN REDISTRICTING				

Data items in a Census Block AAT file

item_name	Width	Decimal Places	Type	Is Item Coded?
BLK90L	4	0	Character	N
TABULATION BLOCK NUMBER LEFT - 1990 CENSUS				
TIGER ITEM 'BLKL'				
BLK90R	4	0	Character	N
TABULATION BLOCK NUMBER RIGHT - 1990 CENSUS				
TIGER ITEM 'BLKR'				
CFCC	3	0	Character	Y
CENSUS FEATURE CLASS CODE				
TIGER ITEM				
CFCC1	1	0	Character	Y
CENSUS FEATURE CLASS CODE - MAJOR FEATURE TYPE				
REDEFINED ITEM				
CNT90LEFT	3	0	Integer	N
FIPS COUNTY CODE LEFT - 1990 CENSUS				
TIGER ITEM 'COL'				
CNT90RGT	3	0	Integer	N
FIPS COUNTY CODE RIGHT - 1990 CENSUS				
TIGER ITEM 'COR'				
CTBNA90L	6	0	Character	N
CENSUS TRACT/BNA CODE LEFT - 1990 CENSUS				
TIGER ITEM CTBNAL				
CTBNA90R	6	0	Character	N
CENSUS TRACT/BNA CODE RIGHT - 1990 CENSUS				
TIGER ITEM 'CTBNAR'				
FDPRE	2	0	Character	N
FEATURE DIRECTION PREFIX				
TIGER ITEM 'DIRPRE'				
FDSUF	2	0	Character	N
FEATURE DIRECTION SUFFIX				
TIGER ITEM 'DIRSUF'				
FMCDCCD90L	5	0	Integer	N
FIPS 55 CODE LEFT (MDC/CCD) - 1990 CENSUS				
TIGER ITEM 'FMCDL'				
FMCDCCD90R	5	0	Integer	N
FIPS 55 CODE RIGHT (MDC/CCD) - 1990 CENSUS				
TIGER ITEM 'FMCDR'				
FNAME	30	0	Character	N
FEATURE NAME				
TIGER ITEM 'FEANME'				
FPLACO90L	5	0	Integer	N
PLACE CENSUS CODE LEFT				
TIGER ITEM 'PLCDEL'				
FPLACO90R	5	0	Integer	N
PLACE CENSUS CODE RIGHT				
TIGER ITEM 'PLCDER'				
FROMLAT	9	0	Integer	N
LATITUDE FROM (IMPLIED 6 DECIMAL PLACES)				
TIGER ITEM				
FROMLONG	10	0	Integer	N
LONGITUDE FROM (IMPLIED 6 DECIMAL PLACES)				
TIGER ITEM				
FSUBMCD90L	5	0	Integer	N
FIPS 55 CODE LEFT (SUB-MCD) - 1990 CENSUS				
TIGER ITEM 'FSMCDL'				
FSUBMCD90R	5	0	Integer	N
FIPS 55 CODE RIGHT (SUB-MCD) - 1990 CENSUS				
TIGER ITEM 'FSMCDR'				
FTYPE	4	0	Character	N
FEATURE TYPE				
TIGER ITEM 'FEATYP'				
LEFTADD1	11	0	Integer	N
FROM ADDRESS LEFT				
TIGER ITEM 'FRADDL'				
LEFTADD2	11	0	Integer	N
TO ADDRESS LEFT				
TIGER ITEM 'TOADDL'				
LEFTFFL	1	0	Integer	N
FROM IMPUTED ADDRESS FLAG LEFT				
TIGER ITEM 'FRIADDFL'				
LEFTTFL	1	0	Integer	N
TO IMPUTED ADDRESS FLAG LEFT				
TIGER ITEM 'TOIADDFL'				

item_name	Width	Decimal Places	Type	Is Item Coded?
RECNUM	10	0	Integer	N
CENSUS RECORD NUMBER (PERMANENT)				
TIGER ITEM				
RGTADD1	11	0	Integer	N
FROM ADDRESS RIGHT				
TIGER ITEM 'FRADDR'				
RGTADD2	11	0	Integer	N
TO ADDRESS RIGHT				
TIGER ITEM 'TOADDR'				
RGTFFL	1	0	Integer	N
FROM IMPUTED ADDRESS FLAG RIGHT				
TIGER ITEM 'FRIADDFR'				
RGTTFL	1	0	Integer	N
TO IMPUTED ADDRESS FLAG RIGHT				
TIGER ITEM 'TOIADDFR'				
RT	1	0	Integer	N
RECORD TYPE (1 = LINE SEGMENT)				
TIGER ITEM				
SIDE	1	0	Integer	N
SINGLE SIDE SEGMENT CODE (1 = DATA EXIST FOR ONLY ONE SIDE				
OF THE SEGMENT) TIGER ITEM				
SOURCE	1	0	Character	Y
SOURCE CODE				
TIGER ITEM				
ST90LEFT	2	0	Integer	N
FIPS STATE CODE LEFT - 1990 CENSUS				
TIGER ITEM 'STL'				
ST90RGT	2	0	Integer	N
FIPS STATE CODE RIGHT - 1990 CENSUS				
TIGER ITEM 'STR'				
STREET	26	0	Character	N
STREET NAME				
DERIVED FROM FNAME AND FTYPE				
TILE-NAME	8	0	Character	N
COVERAGE LOCATION (TILE) IDENTIFIER				
TOWN ID				
TOLAT	9	0	Integer	N
LATITUDE TO (IMPLIED 6 DECIMAL PLACES)				
TIGER ITEM				
TOLONG	10	0	Integer	N
LONGITUDE TO (IMPLIED 6 DECIMAL PLACES)				
TIGER ITEM				
VERSION	4	0	Integer	N
VERSION NUMBER				
TIGER ITEM				
ZIPCOLEF	5	0	Integer	N
ZIP CODE LEFT (ONLY WHEN ADDRESS RANGE IS PRESENT)				
TIGER ITEM 'ZIPL'				
ZIPCORGT	5	0	Integer	N
ZIP CODE RIGHT (ONLY WHEN ADDRESS RANGE IS PRESENT)				
TIGER ITEM 'ZIPR'				

Data items in a Census Block ADD file:

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	Description
1	ADDRESS	45	45	C	-	Street address
46	ZONE	15	15	C	-	Special item to account for addresses which appear more than once in a town
61	SIDE	1	1	C	-	Indicates which side(s) of the arc have addresses
62	PARITY	1	1	C	-	Indicates whether address ranges are even, odd, or mixed
63	SOUNDEX	6	6	C	-	Phonetic spelling
69	TIG-<town-id>#	4	5	B	0	
73	TIG-<town-id>-ID	4	5	B	0	

Census Block Group Datalayer
December 1995

SOURCE

This datalayer was produced from 1992 U.S. Census enhanced TIGER/Line files for the fourteen counties of Massachusetts. This datalayer is known as the *block group* datalayer because it includes the boundaries of census block groups only. This datalayer does not contain the TIGER linework which define *census blocks* and is not suitable for address matching -- such data is contained instead in the Census Block datalayer. This datalayer is intended for use in conjunction with Census Bureau data summarized at the census block group level, including matrices included in the 1990 STF-3a publication.

PRODUCTION

The DEP GIS Group created the Census Block Group coverages. The process involves concatenating matchids from the census county code, census tract, and *block group* number with water bodies coded as 'W', dissolving the original tiger/line coverages on the matchids and finally joining the dissolved coverages with the census STF-3A file at the Census Bureau-defined block group level. Block groups are areas that include a variable number of *census blocks* and are used as the summary level for much of the Census Bureau's demographic data. Block groups typically have a population of about 1,000 people. A good amount of demographic data items from the Census Bureau's STF-3a matrices were appended to the polygon attribute tables of these coverages. Items MINPER and SCORE were also added to the polygon attribute table. MINPER, the percentage of minority population, was calculated by summing the following items: NONHISBLK, NONHISASN, NONHISIND, NONHISOTH, HISWHT,HISBLK,HISASN,HISIND and HISOTH, multiplying the value by 100 and then dividing the result by POP100. SCORE categories are based on the percentages of MINPER.

ATTRIBUTES

The polygon attribute table (PAT) files accompanying each Census Block Group coverage contains the following data items (fields):

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	Area (square feet)
9	PERIMETE	8	18	F	5	Perimeter (feet)
17	WORC#	4	5	B	-	
21	WORC-ID	4	5	B	-	
25	MATCHID-150	10	10	C	-	Matchid
35	BLCKGR	1	1	C	-	1990 Census Block Group
36	TRACTBNA	6	6	C	-	1990 Census Tract
42	CNTY	3	3	C	-	1990 Census County Code
45	HU100	4	9	B	-	Number of Housing Units
49	POP100	4	9	B	-	100-percent count of Persons
53	PERSONS	4	9	B	-	Sample Count of Persons
57	HOUSEHOLDS	4	9	B	-	Households
61	WHITES	4	9	B	-	Caucasian
65	BLACKS	4	9	B	-	African American
69	AMERINDS	4	9	B	-	American Indian
73	ASIANS	4	9	B	-	Asian
77	OTHER	4	9	B	-	Other Race
81	HISPANICS	4	9	B	-	Persons of Hispanic Origin
85	NONHISWHT	4	9	B	-	Non-Hispanic Caucasian
89	NONHISBLK	4	9	B	-	Non-Hispanic African American
93	NONHISASN	4	9	B	-	Non-Hispanic Asian
97	NONHISIND	4	9	B	-	Non-Hispanic American Indian
101	NONHISOTH	4	9	B	-	Non-Hispanic Other Race
105	HISWHT	4	9	B	-	Hispanic Caucasian
109	HISBLK	4	9	B	-	Hispanic African American
113	HISIND	4	9	B	-	Hispanic American Indian
117	HISASN	4	9	B	-	Hispanic Asian
121	HISOTH	4	9	B	-	Hispanic Other Race
125	PIHH1	4	9	B	-	1 Person in Household
129	PIHH2	4	9	B	-	2 People in Household
133	PIHH3	4	9	B	-	3 People in Household
137	PIHH4	4	9	B	-	4 People in Household
141	PIHH5	4	9	B	-	5 People in Household
145	PIHH6	4	9	B	-	6 People in Household
149	PIHH7	4	9	B	-	7 People in Household
153	INC<5000	4	9	B	-	Income < $5000

```
157 INC<10000      4   9 B   -  Income = $5000-$9999
161 INC<12500      4   9 B   -  Income = $10000-$12499
165 INC<15000      4   9 B   -  Income = $12500-$14999
169 INC<17500      4   9 B   -  Income = $15000-$17499
173 INC<20000      4   9 B   -  Income = $17500-$19999
177 INC<22500      4   9 B   -  Income = $20000-$22499
181 INC<25000      4   9 B   -  Income = $22500-$24999
185 INC<27500      4   9 B   -  Income = $25000-$27499
189 INC<30000      4   9 B   -  Income = $27500-$29999
193 INC<32500      4   9 B   -  Income = $30000-$32499
197 INC<35000      4   9 B   -  Income = $32500-$34999
201 INC<37500      4   9 B   -  Income = $35000-$37499
205 INC<40000      4   9 B   -  Income = $37500-$39999
209 INC<42500      4   9 B   -  Income = $40000-$42499
213 INC<45000      4   9 B   -  Income = $42500-$44999
217 INC<47500      4   9 B   -  Income = $45000-$47499
221 INC<50000      4   9 B   -  Income = $47500-$49999
225 INC<55000      4   9 B   -  Income = $50000-$54999
229 INC<60000      4   9 B   -  Income = $55000-$59999
233 INC<75000      4   9 B   -  Income = $60000-$74999
237 INC<100K       4   9 B   -  Income = $75000-$99999
241 INC<125K       4   9 B   -  Income = $100000-$124999
245 INC<150K       4   9 B   -  Income = $125000-$149999
249 INC>150K       4   9 B   -  Income >= $150000
253 BLKPER         4   9 B   -  African American Percentage of Total Population
257 WHTPER         4   9 B   -  Caucasian Percentage of Total Population
261 INDPER         4   9 B   -  American Indian Percentage of Total Population
265 ASNPER         4   9 B   -  Asian Percentage of Total Population
269 OTHPER         4   9 B   -  Other race Percentage of Total Population
273 HISPER         4   9 B   -  Hispanics Percentage of Total Population
277 SUMRACE        4   9 B   -  Summary of Five Races
281 PUBWAT         4   9 B   -  Water from Public/Private Water Supply System
285 DRILLWELL      4   9 B   -  Water from a Drilled Well
289 DUGWELL        4   9 B   -  Water from a dug Well
293 OTHWAT         4   9 B   -  Water from Some Other Sources
297 PUBSEW         4   9 B   - Public Sewer System
301 SEPTIC         4   9 B   -  Septic Tanks/Cesspool
305 OTHSEW         4   9 B   -  Other Means of Sewage Disposal
309 VAL<15K        4   9 B   -  House Value < $15000
313 VAL<20K        4   9 B   -  House Value = $15000-$19999
317 VAL<25K        4   9 B   -  House Value = $20000-$24999
321 VAL<30K        4   9 B   -  House Value = $25000-$29999
325 VAL<35K        4   9 B   -  House Value = $30000-$34999
329 VAL<40K        4   9 B   -  House Value = $35000-$39999
333 VAL<45K        4   9 B   -  House Value = $40000-$44999
337 VAL<50K        4   9 B   -  House Value = $45000-$49999
341 VAL<60K        4   9 B   -  House Value = $50000-$59999
345 VAL<75K        4   9 B   -  House Value = $60000-$74999
349 VAL<100K       4   9 B   -  House Value = $75000-$99999
353 VAL<125K       4   9 B   -  House Value = $100000-$124999
357 VAL<150K       4   9 B   -  House Value = $125000-$149999
361 VAL<175K       4   9 B   -  House Value = $150000-$174999
365 VAL<200K       4   9 B   -  House Value = $175000-$199999
369 VAL<250K       4   9 B   -  House Value = $200000-$249999
373 VAL<300K       4   9 B   -  House Value = $250000-$299999
377 VAL<400K       4   9 B   -  House Value = $300000-$399999
381 VAL<500K       4   9 B   -  House Value = $400000-$499999
385 VAL>500K       4   9 B   -  House Value >= $500000
389 MEDHHINC       4   9 B   -  Median Household Income
393 MEDHHVAL       4   9 B   -  Median Housing Value
397 MINPER         4   9 B   -  Percentage of Minority Population
401 SCORE          1   1 I   -  0 - Percentage of Minority Population LE 25%
                                2 - Percentage of Minority Population GT 25% and LE 50%
                                3 - Percentage of Minority Population GT 50% and LE 75%
                                4 - Percentage of Minority Population GT 75%
  **  REDEFINED ITEMS  **
 34 WATER           1   1 C   -  'W' Means Water body
```

Sample record from a PAT

This record shows census tract 7022 block group 1 in Worcester County, where 1147 people live in 469 housing units. Of these housing units, 72 units are supplied with water from an outside source (a public or privately operated water system) and 70 units dispose of sewage in an offsite (public or privately operated) sewage system. There are 1142 Caucasians and 5 African Americans. The median household income is $33,333 and the median housing value is $109,200.

```
AREA          =  1167267198.10086
PERIMETER     =     210,940.75628
BG#           =    2
BG-ID         =    1
MATCHID-150   =0277022001
BLCKGR        =1
TRACTBNA      =702200
CNTY          =027
HU100         =469
POP100        =1,147
PERSONS =1,147
HOUSEHOLDS = 412
WHITES =    1,142
BLACKS   =  5
```

AMERINDS = 0
ASIANS = 0
OTHER = 0
HISPANICS = 5
NONHISWHT = 1,137
NONHISBLK = 5
NONHISASN = 0
NONHISIND = 0
NONHISOTH = 0
HISWHT = 5
HISBLK = 0
HISIND = 0
HISASN = 0
HISOTH = 0
PIHH1 = 78
PIHH2 = 126
PIHH3 = 64
PIHH4 = 90
PIHH5 = 43
PIHH6 = 7
PIHH7 = 4
INC<5000 = 10
INC<10000 = 37
INC<12500 = 15
INC<15000 = 8
INC<17500 = 17
INC<20000 = 15
INC<22500 = 17
INC<25000 = 13
INC<27500 = 23
INC<30000 = 14
INC<32500 = 29
INC<35000 = 24
INC<37500 = 19
INC<40000 = 14
INC<42500 = 30
INC<45000 = 25
INC<47500 = 8
INC<50000 = 14
INC<55000 = 18
INC<60000 = 23
INC<75000 = 25
INC<100K = 14
INC<125K = 0
INC<150K = 0
INC>150K = 0
BLKPER = 0
WHTPER = 99
INDPER = 0
ASNPER = 0
OTHPER = 0
HISPER = 0
SUMRACE = 1,147
PUBWAT = 72
DRILLWELL = 281
DUGWELL = 110
OTHWAT = 6
PUBSEW = 70
SEPTIC = 391
OTHSEW = 8
VAL<15K = 0
VAL<20K = 0
VAL<25K = 0
VAL<30K = 0
VAL<35K = 5
VAL<40K = 0
VAL<45K = 2
VAL<50K = 2
VAL<60K = 6
VAL<75K = 9
VAL<100K = 50
VAL<125K = 72
VAL<150K = 30
VAL<175K = 16
VAL<200K = 3
VAL<250K = 4
VAL<300K = 0
VAL<400K = 0
VAL<500K = 0
VAL>500K = 2
MEDHHINC = 33,333
MEDHHVAL = 109,200
WATER =
MINPER = 25.20
SCORE = 2

Cape Cod Commission Datalayers
August 1998

OVERVIEW

These coverages are the Cape Cod Commission GIS department's datalayers that are the result of data development at the CCC GIS since 1988. These themes, delivered to MassGIS for general distribution statewide, are those most extensively used by the Commission's programs and have been created primarily to support the Commission's Regional Policy Plan and Local Comprehensive Plans with each of the fifteen towns of Cape Cod. These coverages also have value to other agencies, especially the towns that the CCC works for, as well as State and Federal agencies. Some layers used by the CCC and released to MassGIS were digitized from the 1990 Association for the Preservation of Cape Cod (APCC) Atlas.

Three towns on Cape Cod -- Barnstable, Orleans, and Yarmouth -- have their own GIS and have developed many GIS layers. Yarmouth has chosen to maintain control of the distribution of data the town has developed, and has requested that the CCC and MassGIS not redistribute their parcel coverages. Yarmouth should be contacted to obtain copies of its digital data. Files for Yarmouth that are distributed by MassGIS have been developed by the CCC and do not carry this restriction. **The Cape Cod Commission requests that use of any of its coverages or data bases to generate maps, analyses, or reports be followed by a credit to the Cape Cod Commission as the source of the data.**

Some of the coverages are near-duplicates of layers developed by other state agencies, such as public water supplies (Mass. DEP) or anadromous fish runs (Fisheries and Wildlife). MassGIS is releasing both the layers developed by the Cape Cod Commission and those from various state agencies. Users should note the source dates of each layer. Most importantly, layers developed by DEP that may have influence in regulatory matters (i.e. solid waste facilities, zone IIs) may be more complete and should be used instead of those from the Cape Cod Commission.

PRODUCTION

Most of the coverages the Cape Cod Commission provided to MassGIS were digitized from paper maps using a Calcomp 9100 digitizer and ARC/INFO. Source material varies by layer. Some original manuscripts were obtained from the 1990 APCC Atlas; others came from town sources. Other layers were produced with on-screen digitizing in Arcedit. Attribute information for parcel and zoning coverages came from town planning and engineering departments' and assessors' databases. MassGIS performed quality checking on all layers and standardized all attrribute tables before creating the libraries.

WHAT MassGIS PROVIDES

MassGIS has populated two ARC/INFO libraries with the CCC datasets. The CAPE library comprises cape-wide or multi-town layers. The CAPETOWN library consists of layers for single towns. The following are lists, with brief descriptions, of each library's layers.

CAPE Library:

LAYER	Description
ALLMWRA4	Cape Cod major marine water recharge areas
APCCPHAB	Cape Cod's endangered plant habitat from 1990 APCC Atlas
APCCVEG	Cape Cod's critical communities and habitat from 1990 APCC Atlas
APCCWET	Cape Cod wetlands from 1990 APCC Atlas
APCCWHAB	Cape Cod's wildlife habitat from 1990 APCC Atlas
BIKE10	Bike paths and routes (1996)

BUSBUFF2	Scheduled bus route buffer for Cape Cod from 1991 Regional Policy Plan
BUSRT2	Capewide bus routes from 1991 Regional Policy Plan
BUSSTAT	Bus stations on Cape Cod
CCNSS	Cape Cod national seashore boundary from parcel maps
CCPARBND	Parcel level coastlines and town boudaries of Cape Cod
CPSVWELL	Cape Cod small volume wells - representing DEP's regulatory definition of " small volume wells"
DGWYAW1	New town boundary along Bass River between Dennis and Yarmouth created from surveyed coordinates
FERRY	Origination points and routes of Cape Cod ferry boats and whale watch boats
FISHRUN2	Anadromous fish runs for Cape Cod
FWRECH9	Fresh water recharge areas for ponds and lakes for Cape Cod - not available for all ponds
INDUSTR5	Cape Cod industrial sites pre-screened in Industrial Land Survey Project of 1994
MAJDUNES	Cape Cod's major dunes from 1990 APCC Atlas
MMRBND1	Outline of Massachusetts Military Reservation (1997)
MMRHWPNT	Mass Military Reservation hazardous waste points
MMRSITES	Mass Military Reservation hazardous waste sites from June 1993 community involvement plan and hazwrap
MMRTOXN7	Mass Military Reservation pollution plumes version 7 (1996)
NEWZOC13	All of Cape Cod's "zones of contribution" for public supply wells - also called wellhead protection areas
OKHWHD96	Old Kings Highway historic district for 1996
PLUME96	Suspected or potential pollution plumes for Cape Cod, mainly from landfills and treatment plants (1996)
PONDBUF	300 foot buffer of ponds from MacConnell 1990 landuse for Cape Cod
PUBWELLS	Public supply wells for Cape Cod - 1996
SCENIC	Department of Environmental Managements Scenic Landscape Inventory for Cape Cod (1990)
SHELFISH	Cape Cod potential shellfish habitat areas - general areas that could support shellfish, not actual locations
VERNAL	Cape Cod vernal pools from 1990 APCC Atlas
VILLAGES	Names of Cape Cod villages and their approximate location
WASTDSP2	Cape Cod waste disposal areas version 2 (from parcel coverages)
WATRDIST	Water resource protection districts for public water supplies
WATRTAB2	Groundwater table contours from USGS ten foot intervals where available
WWTF96	Waste water treatment facilities for 1996 Regional Policy Plan update

CAPETOWN Library:

LAYER	Description
PARCELS	Parcel boundaries and assessor's database information (for all towns except Yarmouth). See chart below for source date of assessor's attributes for each town. Coverage name is PAR.
PIPES	Water supply pipes. Shows streets served by water mains; they do not represent the exact location of the pipes (as in which side of the street they are on). Most of the original scales ranged from one inch = 50 ft. to one inch = 1000 ft. Available for all Cape towns except Eastham, Truro and Wellfleet. Coverage name is PIP.
SEWER	Areas in town with access to sewer system. Available only for Barnstable, Chatham, and Falmouth. Coverage name is SEW.

ATTRIBUTES

CAPE Library:

The following coverages have .PATs or .AATs that contain items other than the standard items.

Items in the **ALLMWRA4.PAT**:

ALT-NAME	50	50	C	-	NAME GIVEN TO THE SYSTEM
GROUPING	5	5	C	-	EMBAYMENT OR SYSTEM
ACRES	12	12	I	-	DIGITIZED AREA IN FEET DIVIDED BY 43560
NO3DONE	1	1	C	-	NITROGEN LOADING CALCULATIONS COMPLETED
WATER	1	1	C	-	FIELD USED TO IDENTIFY LAND OR WATER PORTION

Items in the **APCCVEG.PAT**:

VEGTYPE	2	2	C	-	TYPES OF HABITAT CLASSIFIED MAINLY BY VEGETATIVE COVER
ACRES	8	8	N	2	NUMBER OF ACRES CALCULATED FROM THE DIGITIZED AREA

Items in the **APCCWET.PAT**:

HABTYPE	2	2	C	-	TYPE OF WETLAND CLASSIFIED BY VEGETATION
ACRES	8	8	N	2	NUMBER OF ACRES CALCULATED FROM AREA OF DIGITIZED POLYGON

Items in the **BIKE10.AAT**:

TYPE	3	3	C	-	TYPE OF BIKE ROUTE THE LINE IS (Proposed, existing, along street)

Items in the **BUSSTAT.PAT**:

TYPE	10	10	C	-	TYPE OF BUS STATION
SYMB	2	2	C	-	SYMBOL SHOWN ON LRTP MAPS

Items in the **CCNSS.PAT**:

ACREAGE	9	9	N	1	AREA IN ACRES

Items in the **CCPARBND.PAT**:

TOWN	3	3	C	-	TOWN NAME: 3-LETTER USGS DESIGNATION OF TOWN (See below for codes)
ACRES	12	12	N	3	ACRES IN THE POLYGON

Items in the **CPSVWELL.PAT**:

W-TYPE	4	4	C	-	WELL TYPE FOLLOWING DEP DEFINITIONS
SYMBOL	3	3	I	-	ARCPLOT MARKER SYMBOL - REFERS TO A CUSTOM MARKERSET
W-ID	5	5	I	-	IDENTIFICATION NUMBER TO MATCH WITH TABLES ON MAPS AND IN REPORT
TOWN	21	21	C	-	NAME OF TOWN WELL IS LOCATED IN

Items in the **FERRY.PAT**:

SYMB	1	1	C	-	SYMBOL FOR CARTOGRAPHIC PRESENTATION

Items in the **FWRECH9.PAT**:

TYPE	1	1	C	-	DESIGNATIONS FOR LAND, ISLAND OR WATER AREA

Items in the **INDUSTR5.PAT**:

TOWN	2	2	C	-	NAME OF TOWN INDUSTRIAL SITE IS IN
SITE	2	2	I	-	SEPARATE FIELD FOR SITE NUMBER
NAME	8	8	C	-	TOWN NAME ABBREVIATION FOLLOWED BY SITE NUMBER AS LISTED IN SURVEY REPORT

Items in the **MMRHWPNT.PAT**:

TYPE	3	3	C	-	DESIGNATION OF SOURCE OF POLLUTION ASSIGNED BY MILITARY
NUMBER	3	3	I	-	NUMBER OF POLLUTION SOURCE - COMBINES WITH "TYPE"
PREFIX	4	4	C	-	INITIALS OF BRANCH OF MILITARY THAT IS (OR WAS) RESPONSIBLE FOR THE
PROPERTY					

Items in the **MMRSITES.PAT**:

TYPE	3	3	C	-	DESIGNATION OF POLLUTION SOURCE
NUMBER	3	3	I	-	SPILL NUMBER - USED IN COMBINATION WITH "TYPE"
PREFIX	4	4	C	-	AGENCY RESPONSIBLE FOR PROPERTY WHEN SPILL OCCURED

Items in the **NEWZOC13.PAT**:

INZOC	1	1	C	-	USED IN OVERLAY ANALYSIS TO LABEL NEW COVERAGE POLYS THAT ARE "IN THE ZOC"

Items in the **OKHWHD96.PAT**:

ID	6	6	C	-	DISTRICT ID FROM ORIGINAL COVERAGE - NOT MAINTAINED BY CCC
TC	3	3	C	-	TOWN CENTER FROM ORIGINAL COVERAGE - NOT MAINTAINED BY CCC
HN	65	65	C	-	HISTORIC NAME FROM ORIGINAL COVERAGE - NOT MAINTAINED BY CCC
TOWNCODE	8	8	C	-	FROM ORIGINAL COVERAGE - NOT MAINTAINED BY CCC

FORMNO	6	6	C	-	FROM ORIGINAL COVERAGE - NOT MAINTAINED BY CCC
HISTNAME	65	65	C	-	SAME AS HN - FROM ORIGINAL COVERAGE - NOT MAINTAINED BY CCC
PROPCOUNT	9	9	C	-	NUMBER OF PROPERTIES - FROM ORIGINAL COVERAGE - NOT MAINTAINED BY CCC
LHD	6	6	C	-	LOCAL HISTORIC DISTRICT - NOT MAINTAINED BY CCC

Items in the **PONDBUF.PAT**:

INSIDE	4	5	B	-	DESIGNATES THE INSIDE OF THE BUFFER

Items in the **PUBWELLS.PAT**:

ID	4	4	I	-	USGS ID FOR WELL DATA BASE - NOT MAINTAINED BY CCC
NAME	40	40	C	-	WATER DEPARTMENT NAME
CITY	15	15	C	-	TOWN WATER DEPARTMENT WELL IS IN - NOT ALWAYS THE TOWN THE WELL IS IN
MP-IDENTIFIER	15	15	C	-	LATTITUDE-LONGITUDE USED BY USGS TO CREATE THE SITE IN THE ORIGINAL COV.
DESCRIPTION	15	15	C	-	USGS NAME FOR THE WELL - NOT MAINTAINED BY CCC
MP-PERMIT#	9	9	C	-	MASS DEP WELL PERMIT NUMBER - NOT MAINTAINED BY CCC
SOURCE	5	5	C	-	AGENCY RESPONSIBLE FOR REPORTING THE WELL LOCATION IN ORIGINAL COVERAGE
NEW	1	1	C	-	YES (Y) OR NO (N)
TYPE	20	20	C	-	OPERATIONAL STATUS OF WELL
SHORTNAME	12	12	C	-	SHORTENED VERSION OF WELL NAME FOR LABELTEXT ON MAPS
LENS	10	10	C	-	GROUNDWATER LENS NAME

Items in the **SCENIC.PAT**:

LANDSCAPE	11	11	C	-	DEM'S LANDSCAPE CLASSIFICATION
SYMBOL	3	3	I	-	ARCPLOT SHADE SYMBOL ITEM

Items in the **SHELFISH.PAT**:

ISLAND	1	1	C	-	ISLAND POLYGON DESIGNATION
STATUS	1	1	C	-	STATUS OF THE AREA FOR SHELLFISH HARVESTING
ACRES	7	7	N	1	AREA IN ACRES

Items in the **VILLAGES.PAT**:

NAME	15	15	C	-	VILLAGE NAME
HISTORIC	1	1	C	-	IDENTIFIES WHICH VILLAGE IS CONSIDERED HISTORIC

Items in the **WASTDSP2.PAT**:

STATUS	8	4	C	-	STATUS OF SITE
ADDRESS	40	30	C	-	ADDRESS OF SITE
CLOSE-SML	6	6	C	-	
KIND	9	9	C	-	TYPE OF DISPOSAL SITE
ACRES	4	4	I	-	AREA IN ACRES
OWNERSHIP	10	7	C	-	STATUS OF OWNERSHIP
WSID	20	20	C	-	
LTPY85	10	10	I	-	
USE85	8	5	C	-	
REFUSE	1	1	C	-	YES OR NO
DEMOL	1	1	C	-	YES OR NO
STUMPS	1	1	C	-	YES OR NO
ASH	1	1	C	-	YES OR NO
SLUDGE	10	10	C	-	
SUPERFUND	1	1	C	-	
SPEC-WASTE	9	9	C	-	
EXPANSION	19	19	C	-	NO/INTENDED/APPROVED
LEACH-COLL	13	13	C	-	YES OR NO
LINER	1	1	C	-	YES OR NO
MONITOR	13	10	C	-	
CAPPING	20	15	C	-	
TOWN	15	15	C	-	TOWN OF SITE
QUAD	4	4	I	-	USGS QUAD OF SITE
NAME	30	30	C	-	SITE NAME
INZOCRANK	1	1	I	-	
SIZERANK	1	1	I	-	
LEGRAND	20	20	C	-	
LEGZ	4	4	C	-	
DIST-INZOC	6	6	I	-	
DIST-OUTZOC	6	6	I	-	
RISK	6	6	N	2	
RISK-CAT	1	1	I	-	
OUTZRANK	2	2	I	-	
NAME2	15	15	C	-	
DEPTH-RANK	2	2	I	-	
SIZE-RANK	2	2	I	-	
LINER-RANK	2	2	I	-	
LEACH-RANK	2	2	I	-	
THICK-RANK	2	2	I	-	
STAR	1	1	C	-	
TRANS	2	2	C	-	
RECYC	1	1	C	-	
**** REDEFINED ITEMS ****					
DEPTH	1	1	I	-	
GRADIENT	1	1	I	-	GRAD-RANK (ALTERNATE NAME)
THICK	2	2	C	-	

Items in the **WATRDIST.PAT**:

LOC	3	3	C	-	LOCATION OF WATER DISTRICT

Items in the **WATRTAB2.AAT**:

INTERVAL	4	5	B	-	CONTOUR ELEVATION IN FEET ABOUVE MEAN SEA LEVEL
LENS	4	4	C	-	NAME OF GROUNDWATER LENS THAT CONTOURS ARE FOR

CAPETOWN Library:

Items in the **PAR.PAT**:

TOWN-ID	3	3	I	Town identification number
GISLINK	7	7	I	Link to assessor's database
TOWN-GIS	10	10	C	Combined TOWN-ID and GISLINK code, used to uniquely identify any parcel across the Cape
MAP	6	6	C	Assessors' map number
BLOCK	8	8	C	Assessors' block number
LOT	22	22	C	Assessors' lot number
STREET_NO	9	9	C	Street address number
STREET_NAME	32	32	C	Street address name
STATECLASS	3	3	I	State class code form assessors' database
ACRES	12	12	N	Assessed parcel size in acres
PD-RD	1	1	C	Identifies polygons that are not parcels: 'P' for pond or 'R' for road.

Items in the **PIP.AAT**:

DIAMETER	4	4	N	1	Pipe diameter in inches

Items in the **SEW.PAT**:

SEWERED	2	2	C	Whether the polygon is a sewered area ('Y' or 'N')

Source date for CAPETOWN.PARCELS (as listed in Info table $CAPETOWN/database/PAR.PXS):

BARNSTABLE	1996	EASTHAM	1997	PROVINCETOWN	1993
BOURNE	1995	FALMOUTH	1994	SANDWICH	1993
BREWSTER	1996	HARWICH	1993	TRURO	1993
CHATHAM	1996	MASHPEE	1994	WELLFLEET	1989
DENNIS	1993	ORLEANS	1996	YARMOUTH	No parcels data

RELATED TABLES

In order to preserve all original attribute information as originally developed by either the towns or the Cape Cod Commission, the polygon attribute tables for the parcels and zoning layers are available as related INFO tables in the $CAPETOWN/database directory. Because the items differ among the original .PATs, these tables can be used to relate to individual coverages rather than the library as a whole, based on the '-ID' items. Two sets of tables exist: the original parcel .PATs are named according to their three-letter character designations given to the towns of Cape Cod by the USGS plus the letters 'PAR' along with a '.PRT' extension. Original zoning .PATs have the three-letter code with 'ZON' and a '.PRT' extension. Relates also can be set up using another INFO table in $CAPETOWN/database - TOWNCODE.DAT, which contains the three-letter USGS code ('CAPECODE'), town and town-id.

TOWNCODE.DAT is as follows:

CAPECODE	TOWN	TOWN-ID
A1W	BARNSTABLE	20
BHW	BOURNE	36
BMW	BREWSTER	41
CGW	CHATHAM	55
DGW	DENNIS	75
EGW	EASTHAM	86
FSW	FALMOUTH	96
HJW	HARWICH	126
MIW	MASHPEE	172
OSW	ORLEANS	224
PZW	PROVINCETOWN	242
SDW	SANDWICH	261
TSW	TRURO	300
WNW	WELLFLEET	318
YAW	YARMOUTH	351

As an example of the original.PATs, the original parcel .PAT for Barnstable is named A1WPAR.PRT.

Original metadata for the $CAPETOWN library created by the Cape Cod Commission are stored as Info files in directories under the $CAPETOWN/database directory (parmeta, pipmeta, sewmeta, and zonmeta). These files are named according to the three-letter CAPECODE and have a .CCC

extension. The original .DOC, .PAD, .PAC, .AAD, and .AAC files, if available, are stored here as well. Original metadata (with the .CCC extension) for the $CAPE library are stored as Info files in $CAPE/database. Some of these .CCC files may mention 'NAD27' or 'stateplane feet,' referring to original datums. All data from the Cape Cod Commission have been projected into Mass. State Plane NAD83 meters.

MAINTENANCE

MassGIS is not maintaining these data. Future updates of any of these layers will be done by the Cape Cod Commission GIS staff prior to subsequent release by MassGIS. For current status of any of the aforementioned datasets please contact Gary Prahm, GIS Manager at the Cape Cod Commission, at (508) 362-3828. For more information on the Cape Cod Commission, visit its site on the World Wide Web at http://www.vsa.cape.com/~cccom/.

Digital Orthophoto Annotation Datalayer
December 1995

OVERVIEW

The annotation in this datalayer is specifically placed and scaled to be used in conjunction with the 1:5,000 Black and White Digital Orthophoto images. They are tiled by Orthophoto Index Grid sheets. Each coverage is named **AN** in layer **ANNO_OQ**.

PRODUCTION

The annotation is based on the USGS GEONAMES coverage. The annotation was selected and placed so that each Ortho Index Grid Sheet has identifiable landmarks. Each Index Sheet annotation coverage has road names, town names, hilltops, site names, streams, ponds and reservoirs. Arc/INFO annotation subclasses segregate the annotation into PLACE, ROAD and HYDRO. The point coverage associated with the annotation is used to locate marker symbols that differentiate the road types (State, U.S. Route, Interstate).

ATTRIBUTES

The SYMBOL item of the .PAT contains the code for the appropriate symbol. A specialized markerset and fontset have been developed for displaying the annotation on the Orthophotos.

```
Arc: items an149918.pat
```

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	ALTERNATE NAME
AREA	8	18	F	5	-
PERIMETER	8	18	F	5	-
AN149918#	4	5	B	-	-
AN149918-ID	4	5	B	-	-
SYMBOL	4	4	I	-	-

The MARKERINFO for OQROADS.MRK is:

```
Arcplot: markersym 4 (THIS IS FOR THE INTERSTATE ROUTES)
Arcplot: markerinfo

Markeroffset: X=0, Y=0
Markerscale factor is 1 in X, 1 in Y.

Layer Font Pattern    Angle     Size     Layer-Offset Pensize Linecap Linejoin
   1   31     52    0.000  0.200  0.200  0.000  0.000  0.030    BUTT    MITER
   1 Color: C-0.000% M-100.000% Y-100.000% K-0.000% (Red)
   1 Marker mask: NONE

Arcplot: markersym 5 (THIS IS FOR THE US ROUTES)
Arcplot: markerinfo

Markeroffset: X=0, Y=0
Markerscale factor is 1 in X, 1 in Y.

Layer Font Pattern    Angle     Size     Layer-Offset Pensize Linecap Linejoin
   1   31     50    0.000  0.200  0.200  0.000  0.000  0.030    BUTT    MITER
   1 Color: C-0.000% M-100.000% Y-100.000% K-0.000% (Red)
   1 Marker mask: NONE
Arcplot: markersym 6  (THIS IS FOR THE STATE ROUTES)
Arcplot: markerinfo

Markeroffset: X=0, Y=0
Markerscale factor is 1 in X, 1 in Y.

Layer Font Pattern    Angle     Size     Layer-Offset Pensize Linecap Linejoin
   1   31     51    0.000  0.200  0.200  0.000  0.000  0.030    BUTT    MITER
   1 Color: C-0.000% M-100.000% Y-100.000% K-0.000% (Red)
   1 Marker mask: NONE
```

The symbol numbers for the fonts used refer to the Arc/INFO textset FONT symbols. The revised textset F_HALO.TXT has "black" halos around "white" fonts so that the anno will be visible over white or black images. The size of the annotation is based on cartographic constraints as well as importance. This annotation is scaled specifically for display at 1:5000. The sizes listed below are for use in ARCEDIT and represent Meters. The meters to "Point size" conversion for a 1:5,000 scale [(pts size * .014/39.37)*5000] is:

10 pt. = 17.780 m
12 pt. = 21.082 m
14 pt. = 24.892 m
18 pt. = 32.004 m
24 pt. = 42.672 m
36 pt. = 64.008 m

Each Subclass is segmented into the following layers:

SUBCLASS:	LAYER:
Hydro- Font #17	1) Size 64
	2) Size 42
	3) Size 32
	4) Size 24
	5) Size 21
	6) Size 17
	7) Size 14
Road- Font #9	1) Size 21 (Roads Names)
	2) Size 21 (Roads Numbers)
Places- Font #16	1) Size 32
	2) Size 24
Font # 8	3) Size 21
Font # 7	4) Size 21

Here is a typical listing of the $ALL items in ARCEDIT:

$ID	=	7
$SYMBOL	=	9
$LEVEL	=	1
$SIZE	=	21.08200
$TEXT	=	LAKE
$OFFSETX	=	0.00000
$OFFSETY	=	0.00000
$WORD	=	0
$JUSTIFY	=	LL
$FIT	=	OFF
$ALIGN	=	

MAINTENANCE

This datalayer is maintained by MassGIS. Annotation is available for approximately ten percent of the state, mostly in the Quabbin-Ware-Wachusett Watershed area. There are no current plans to continue developing this layer.

Geographic Place Names Datalayer
April 2000

OVERVIEW

This datalayer represents place names for geographic features, grouped into three categories:

- hydrographic features - lakes, ponds, streams, rivers, bays, harbors, channels
- civic features - city and town names, sections, villages
- hypsographic features - hills, mountains, points, beaches, islands

The data were taken from an older statewide datalayer named GEONAMES, based on annotation as it appears on the U.S. Geological Survey's 1:24,000/1:25,000 Topographic maps. The GIS Group at the Massachusetts Department of Environmental Protection underwent a statewide quality checking of the data, which included adjusting the position of each label to best match its feature.

This datalayer, also named **GEONAMES**, is stored in the QUAD library. ARC/INFO coverages of feature type Annotation are named **GNM**. Three subclasses of annotation exist: HYDRO, PLACES, and HYPSO.

MAINTENANCE

The DEP GIS Group maintains the data.

Adjacent States' Town Boundaries Datalayers
January 1998

OVERVIEW

These datalayers represent the municipal boundaries of the five states that border Massachusetts, plus those of Maine. These layers are stored in the NE library. The following list describes the original source and scale of the data and how MassGIS obtained them:

- **CTTOWNS** - Connecticut; USGS 1:24,000 Topographic Quad maps, obtained from CT Dept. of Environmental Protection Natural Resources Center.
- **METOWNS** - Maine; USGS 1:62,500 Quad series, obtained from ME Dept. of Conservation in 1990.
- **NHTOWNS** - New Hampshire; 1:250,000 statewide manuscript, obtained from NH Granit (NH state GIS program) in 1990.
- **NYTOWNS** - New York; NY State Office of Real Property Services, obtained from NH Granit office.
- **RITOWNS** - Rhode Island; USGS 1:24,000 Topographic Quad maps, obtained from RIGIS (Rhode Island GIS) in 1989.
- **VTTOWNS** - Vermont; USGS 1:250,000 maps, obtained from Vermont Office of GIS.

All six layers were projected to the Massachusetts State Plane Mainland coordinate system, NAD83 datum, units meters, for use with all other MassGIS data. Please note that the layers vary in quality and are distributed for use only in regional mapping.

ATTRIBUTES

Each coverage has a polygon attribute table (.PAT). The items for each are as follows:

CTTOWNS.PAT:
TNA (Alternate name TOWN) - Town name
FEATURE - Towns in the Connecticut River Basin = 1, outside of basin = 0
ACRES - Area of town in acres

METOWNS.PAT:
COUNTY-ID - Maine County ID
TOWN-ID - Maine Town ID
TOWN - Town name
ALT-ID - Alternate TOWN-ID

NHTOWNS.PAT:
FIPS - Federal Information Processing Standard Census code
NAME - Town name
COUNTY - Redefined item (1st digit of FIPS item)

NYTOWNS.PAT:
LABEL - Town name
SWIS - Unique New York State municipality identification code

RITOWNS.PAT:
NAME - Town name
OSP-CODE - Unique town identifier
TFIPS-CODE - Town FIPS (US Census) code
CFIPS-CODE - County FIPS (US Census) code
COUNTY - County name
LAND - Land feature (1 = land, 0 = water)

VTTOWNS.PAT:
VTTOWN# - Unique town identifier
FIPS - US Census FIPS Code
TOWNNAME (Alternate name TN) - Town name
RPC - Regional Planning Commission Abbreviation
** REDEFINED ITEMS **
COUNTY - FIPS County code
TOWN-CODE (Alternate name) TC - FIPS Town code

MAINTENANCE

As stated above, MassGIS distributes these layers for use in regional mapping and does not maintain or update them. For web links to each state's GIS program, please see the "Where to Turn for More Information" page.

New England Boundary Datalayers
July 1998

OVERVIEW

These datalayers represent the outlines of the states bordering Massachusetts, plus that of Maine. The layer names are as follows (with coverage name in parentheses):

- **NE_MASK** - "Mask" around the Massachusetts border, for plotting purposes
- **NEWENGLAND** (**NEWNGLND**) - Outlines of the New England States

Both layers were projected to the Massachusetts State Plane Mainland coordinate system, NAD83 datum, units meters, for use with all other MassGIS data. Please note that the layers are general in nature and are distributed only for plotting purposes.

ATTRIBUTES

Each coverage has a polygon attribute table (.PAT). The items for each are as follows:

NE_MASK.PAT:

TYPE - Code for each state:
1 - Connecticut
2 - Maine
3 - New Hampshire
4 - Rhode Island
5 - Vermont
7 - New York

NEWNGLND.PAT:

FIPS - State FIPS (US Census ID)
NAME - State name
ACRES - Total state acreage

MAINTENANCE

MassGIS maintains these layers.

Atlantic Canadian Provinces Datalayers
April 1997

OVERVIEW

This datalayer represents the general boundaries of the eastern Canadian provinces, including Nova Scotia, New Brunswick, and Prince Edward Island. The layer and coverage are both named ATLNPROV, stored in the NE library. The Massachusetts Department of Fisheries and Wildlife GIS program obtained the dataset from Environment Canada's GIS office. The layer was projected to the Massachusetts State Plane Mainland coordinate system, NAD83 datum, units meters, for use with all other MassGIS data. **Please note that the layers are general in nature and are distributed only for small-scale plotting purposes**.

ATTRIBUTES

The ATLNPROV.PAT (polygon attribute table) contains the following items:

SQMILES	Area of polygon in square miles
LAND	Land areas = 1, water bodies = 0
PROVINCE	Province name

MAINTENANCE

MassGIS maintains these layers.